RESOURCE AND PATIENT MANAGEMENT SYSTEM

Information Systems Guide

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Information Technology Support Center
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1.0 Introduction

1.1 Overview

The Indian Health Service (IHS), charged with administering the principal healthcare program for American Indians and Alaska Natives (AI/AN), provides comprehensive health services through a system of Federal Indian Health Service, Tribal, and Urban (I/T/U) operated facilities and programs. These I/T/Us provide health services to 1.4 million AI/AN through 144 Service Units composed of more than 500 direct healthcare delivery facilities, including 49 hospitals, 190 health centers, 7 school health centers, and 287 health stations, satellite clinics, and Alaskan village clinics. Within this system, tribes deliver IHS-funded services to their own communities with over 30% of the IHS budget in 11 hospitals, 129 health centers, 3 school health centers, and 240 health stations. Tribes who have elected to retain the Federal administration of their health services or to defer tribal assumption of the IHS program until a later time, receive services with about 65% of the IHS budget in 38 hospitals, 61 health centers, 4 school health centers, and 47 health stations. The range of services includes traditional inpatient and ambulatory care and extensive preventive care, including focused efforts toward health promotion and disease prevention activities.

In addition, various healthcare and referral services are provided to Indian people in off-reservation settings through 34 urban programs. Another integral part of the program is the purchase of services from non-IHS providers to support, or in some cases, in lieu of, direct care facilities.

1.2 IHS Mission

The mission of the Indian Health Service, in partnership with American Indian and Alaska Native people, is to raise their physical, mental, social, and spiritual health to the highest level.

1.3 IHS Goal

The goal of the IHS is to assure that comprehensive, culturally acceptable personal and public health services are available and accessible to American Indian and Alaska Native people.

1.4 IHS Foundation

The IHS is founded on the Federal Government's obligation to promote healthy American Indian and Alaska Native people, communities, and cultures and to honor and protect the inherent sovereign rights of Tribes.

1.5 Strategic Objectives

These three fundamental charges to the IHS are integrated into the IHS Strategic Plan for the Government Performance and Results Act (GPRA) to yield the following four broad IHS Strategic Objectives:

1. **Improve Health Status** To reduce mortality and morbidity rates and enhance the quality of life for the eligible American Indian and Alaska Native population.

2. **Provide Health Services** To assure access to high quality comprehensive public health services (i.e., clinical, preventive, community-based, educational, etc.) provided by qualified culturally sensitive health professionals with adequate support infrastructure (i.e., facilities, support staff, equipment, supplies, training, etc.)

3. **Assure Partnerships and Consultation with I/T/Us** To assure that I/T/Us, and IHS Area and Headquarters achieve a mutually acceptable partnership in addressing health problems. This involves providing adequate opportunities for I/T/Us and American Indian and Alaska Native organizations to participate in critical functions such as policy development and budget formulation and assuring that I/T/Us have adequate information to make informed decisions regarding options for receiving health services.

4. **Perform Core Functions and Advocacy** Consistent with the IHS Mission, Goal and Foundation, to effectively and efficiently advocate for the healthcare needs of the American Indian and Alaska Native people, and execute the core public health and inherent federal functions.

2.0 Overview of RPMS Applications

2.1 Overview

RPMS is a decentralized automated information system of over 50 integrated software applications. Many RPMS applications can function in a standalone environment if necessary or appropriate. The system is designed to operate on micro- and mini-computers located in IHS or tribal healthcare facilities.

RPMS software modules fall into three major categories: (1) administrative applications that perform patient registration, scheduling, billing, and linkage functions; (2) clinical applications that support various healthcare programs within IHS; and (3) infrastructure applications.

The Division of Information Resources (DIR) distributes the RPMS application suite to Headquarters and each IHS Area Office. The Area Office then releases the RPMS application suite to the healthcare facilities within its Area. Different facilities use different configurations of RPMS applications, depending upon the types of services they provide. That is, the type of services (e.g., dental, laboratory, and inpatient) offered at a site determines the scope of RPMS applications used by the facility. For instance, because they handle both inpatient and outpatient care, hospitals typically run more RPMS applications than other healthcare facilities such as clinics which provide only outpatient care.

2.2 Features

Administrative Applications
The RPMS administrative applications support the business of healthcare provision. Applications in this category are used to collect, store, and report patient demographic information; manage the scheduling, admission, discharge, and transfer of patients in inpatient facilities; create claims and handle both manual and electronic billing and accounts receivables; and electronically manage resource requests and supplies.

Clinical Applications
The RPMS clinical applications directly support the provision of healthcare. Applications in this category generally collect all patient related information gathered during patient contacts into one comprehensive, centralized data file to support healthcare planning, delivery, management, and research. The Patient Care Component provides for entry of visit data that forms the core dataset used by most of the RPMS applications. Other applications in this category support patient care and

include, for instance, Laboratory, Radiology, Inpatient and Outpatient Pharmacy, Allergy Tracking, Immunology, Dental, Women's Health.

Infrastructure

This category of applications comprises and supports the RPMS environment with management, development, and communication tools. The MailMan application is an electronic messaging system. VA Kernel software provides a portability layer between the underlying operating system and application code and provides a Kernel Toolkit that supplements the Kernel software package with development and quality assessment tools, capacity management tools, and system management utilities. The VA FileMan is the RPMS database management system (DBMS).

3.0 Clinical Applications

3.1 Asthma Register System

Overview
The system is used by practitioners to track asthma patients in their service area. The system is fully integrated with the Patient Care Component (PCC) and thus, there is little or no data entry on the part of the practitioner. The system contains a supplement to the health summary, several health summary health maintenance items and a series of reports.

Features

- Highlights of Asthmas Resister system features:
- Lists of patients whose medications have not been changed within a certain period of time, who have not been in for a maintenance visit within a specified period, or who are on medications for which there is a more effective alternative.
- Call lists or address lists can be generated so patients can be contacted before their therapy becomes ineffective and they are at risk of an exacerbation.
- Tracking abilities that help providers to gain a better understanding of their patient's disease by providing patient histories without the necessity of chart review. The result is improved patient care, a reduction in expensive acute or ER visits, and ultimately a better quality of life for the patient.
- The Asthma register is used to maintain a list of all asthma patients and contains the following data items:
    - Patient Name
    - Status (active, inactive, deceased, transient, un-reviewed)
    - Date Added to Register
    - Date inactivated
    - Inactivated By
    - Last Asthma Visit in PCC
    - Calculated Next Due Date
    - Next Scheduled Appointment (enter by user)
    - User who added patient to register
    - Case Manager
    - Notes/Comments

3.2 Case Management System

Overview
The Case Management System establishes and maintains patient registers for managing the healthcare of select groupings of patients, such as patients who are high-risk or who have special follow-up care needs. A healthcare provider can establish a patient register, identify and track information, update clinical factors about patients, and retrieve register-specific factors to monitor.

Features
Highlights of outstanding Case Management features include:

- Long term tracking of high risk patients and those with special needs requiring follow-up.
- Automatic addition of patients to register based on PCC data.
- Data elements customized for each register.
- Option to print PCC Problem List on Case Summaries.
- Ability to print clinical data from PCC for patients in a register.

3.3 Community Health Representative Information System

Overview
The Community Health Representative Information System (CHR/PCC) is a powerful tool which permits a community health representative (CHR) to inform other members of the healthcare team about health-related activities taking place in the patient's home or in the community. CHR/PCC allows for the entry of data to a remote device (notebook or laptop computer) that the CHR takes into the home or community. Then the CHR can upload data from the remote device to the computer at their home Service Unit. As the data uploads, it is automatically entered into the PCC database. If a remote device is not available, this application provides an option data entry directly onto the RPMS Service Unit computer. An extensive reports module is available with an option for exporting activity records to the national CHRIS II reporting system.

Features
Outstanding CHR features include:

- Data Entry Menu used for entering data into the CHR/PCC. There are two ways to enter data into the CHR/PCC.

- Reports Menu provides a means for generating a wide variety of reports from the data that has been entered into the system. CHRIS II reports are also available to you as are several general retrieval capabilities.
- Manager Utilities provides the manager of the CHR/PCC system with several utilities to update the system site parameters, download patient demographics to the remote computers, and export data to the CHRIS II system.
- Send File from CHR Remote System transmits a file of CHR transactions from a remote computer to the computer at the home Service Unit.

3.4 Contract Health System

Overview
Contract Health System (CHS) tracks, stores, and reports clinical and cost data on patient referrals to in-house clinics, other IHS facilities, and contract health providers.

This module is a facility-based automated document and fiscal management system for the IHS Contract Health Service Program. The CHS is a fully integrated component of the RPMS and uses shared data files for patients and vendors. The system generates authorizations for payment for CHS and maintains an up-to-date commitment register of current obligated and paid CHS funds. The CHS automates the document preparation functions including document generation, printing, and approval for payment. The application provides for electronic communication of authorization information to other offices (e.g. Area Offices, the Parklawn Computer Center, and Fiscal Intermediary).

Recent additions include an updated version of the denial functions, including expanded features to address deferral cases; more informative error messages; improved HFS search; additional fields on the Universal P.O.; and updated EOBR processing.

Features
The Contract Health System contains the following features:

- Maintenance of a running total of dollars expended by categories of care
- Access to account balances
- Ability to handle multiple year common accounting numbers (CANs)
- Online reports by document, patient, and vendor
- Electronic EOBR transmissions
- Incorporation of the Contract Health Denial/Deferral System, previously a separate package

3.5 Dental Data System

Overview
The Dental Data System (DDS) meets the data processing needs of facility-based dental programs as well as those of central management. The DDS can operate as an integrated module of the Patient Care Component or as an independent package linked with the IHS Patient Registration System. The program captures the minimum data requirements for direct care and contract care programs that include data extraction and transmission routines for central processing. Various data entry/edit and retrieval options are available and may be modified according to the need.

Features
Highlights of outstanding Dental features include:

- Integrated with PCC to supply dental visit data including ADA codes and to take advantage of the extensive clinical database available
- PCC surveillance for providers to trigger notification for dental exams
- Effective follow-up assisted by waiting list and recall functions
- Simplified Quality Improvement Report generator
- Dental service and fluoridation surveillance data periodically transmitted to Area Office.

3.6 Diabetes Management System

Overview
The Diabetes Management System (DMS) provides a unique capacity for improving the care and management of patients with this significant health problem. The new Diabetes Management System is patient-centered. In addition, it provides the capability to monitor the overall effectiveness of a diabetic program using an automated audit system. It has been designed as a supplement to the Case Management System and PCC Management Reports, which have been used together in the past to meet these needs.

Features
Highlights of outstanding Diabetes Management System features include:

- A Diabetes Register using the PCC Case Management System, a Patient Care Summary, and inclusion of a Diabetes flowsheet on the PCC Health Summary.
- Monitoring and prompting of important care items on the Health Summary.

- Standard nomenclature for recording diabetes exams and education on PCC forms
- Case Management System report options
- Access to all PCC clinical data
- E-mail bulletins identifying newly diagnosed diabetic patients or those with new complications
- Simplified creation of taxonomies of medications, laboratory tests, diagnoses, exams, and procedures
- An automated Diabetic Program Audit report that can be generated for an individual patient, a template of patients, the entire IHS Diabetic Register at a facility, or for a random sample of patients from the Register.

3.7 Diagnosis Related Grouper (DRG)

Overview
The Diagnosis Related Grouper (DRG) module helps in the collection of Medicare, Medicaid, Private Insurance funds, and the estimation of charges for referral care. It returns to the user a Diagnosis Related Group (DRG) value together with the IHS Weight and Average Length of Stay associated with that DRG. If multiple diagnoses and procedures are entered, the system returns all possible DRGs and their weights with each diagnosis considered as the principal diagnosis. The DRG Grouper makes use of the PCC computer-assisted coding system, thus permitting entry of diagnoses and procedures in narrative terms or by ICD codes. The grouper linked to a Cost Estimator displays anticipated costs at designated hospitals for each DRG.

Features
Highlights of outstanding DRG features include:

- A “black box” utility that can be called from other applications to determine DRG value
- A standard mechanism for classifying patients deemed medically comparable and requiring the same amount of resources of care

3.8 Dietetics

Overview
Dietetics, adapted from the Department of Veterans Affairs, consists of two modules. The Nutritional Assessment module assesses the energy and protein needs of general medical and surgical patients. Assessments are based on age, sex, height, weight, frame size, and activity level, amputation status, some laboratory and skinfold results,

and a stress/injury factor. The Energy/Nutrient Analysis Module produces a rapid, accurate nutrient analysis of menus, food intake studies, and recipes. Any facility can update the Food Nutrient file with local foods not in the national file. IHS has already added many native food with their nutrient calculations.

Features
Highlights of Dietetics' outstanding features include:

- Routine calculations for energy, protein, IBW, BEE, and comparison of basic laboratory values performed for most routine medical/surgical patients.
- Capable of extended service to a large population.
- Provision of either a 10- or 32-nutrient analysis of menus or recipes.
- Ability to store recipes and menus for comparisons.
- Ability of facilities to identify local food usage with a "Quick List" of frequently used items, including local foods, with nutrients.

3.9 Immunization Module

Overview
The Immunization Module system can run either in a standalone mode or linked to the Patient Care Component (PCC) module. Both modes store immunization data used to generate immunization reports. This module also compiles and reports on historical and current immunization data (including adverse reactions) to patient records.

Features
Highlighted Immunization System features include:

- Ability to add historical and current immunizations data for a patient.
- Recording of adverse reactions.
- Updating vaccine lot numbers.
- Verifying a patient's immunization record.
- Tracking unregistered newborns.

Valuable reports include:

- Children due for immunizations.
- Immunizations due letters for patients.
- Quarterly Immunization Reports.
- Vaccine Accountability Report.

3.10 Laboratory

Overview
The Laboratory module automates recordkeeping and reporting for all areas of Anatomic Pathology (Surgical Pathology, Cytopathology, Electron Microscopy, and Autopsy). The module provides valuable quality improvement features, aids productivity, provides comprehensive search and reporting capabilities, and aids in the gathering of workload statistics. It also provides comprehensive laboratory/pathology data to healthcare providers and other healthcare personnel.

This package includes a Blood Bank module that is described later in the Features section. Note that both Anatomic Pathology and Blood Bank are integral to the Lab package and are not standalone application products.

Features
Highlighted Laboratory package features include:

- Availability of historical pathology data during microscopic examination of current specimens.
- Generation of defined “groups” of cases requiring additional review.
- Compilation of all information in a single cumulative patient summary.
- Immediate access to surgical pathology, cytology, electron microscopy specimens, and autopsy data.
- Access to released reports by non-laboratory personnel.
- Generation of labels for both specimens and slides.
- Comprehensive listing and reporting capabilities include final pathology, autopsy, cytology, E.M., and turnaround reports.
- Log book of specimens accessioned, final diagnoses, and a variety of reports based on morphology, procedure, and etiology of disease field entries.

- Workload statistics on number of specimens accessioned by area and specified procedure.

A Blood Bank module maintains information about the donation of a unit of blood/blood product by the name of the blood donor. Information about transfusion and testing of patient samples is linked to the patient name and health record number.

Benefits of Blood Bank

- Improves the safety of blood/blood product transfusions by decreasing the number and severity of human errors.
- Evaluates the appropriateness of all transfusions and specific blood products with other modules of the Laboratory system.
- Decreases clerical workload through barcode data entry, label preparation following data entry, and integration with other RPMS applications.
- Provides resource management through cost accounting and workload statistics.

3.11 Behavioral Health System (BHS)

The Behavioral Health system is a module of the Resource and Patient Management System (RPMS) designed specifically for recording and tracking patient care related to behavioral health. Version 3.0 combines the original software functionality of the Mental Health / Social Services System, version 2.0 with the statistical and staging tools originally provided in the Chemical Dependency Management Information System, version 4.1, a standard IHS Suicide form, and several other new data elements. The entire software package supports real-time data entry by Behavioral Health providers for patient care and program management.

This software provides:

- Opportunities for improved patient outcome and continuity of care
- Standardized record-keeping
- Tools to meet regulatory and accreditation agency requirements
- Enhanced provider communication
- Optimized billing capture
- Report generation for epidemiology, program management, program planning, and justification for increased funding and staffing
- Provides assistance with JCAHO (Joint Commission on Accreditation of Healthcare Organizations), CARF (Commission on Accreditation of Rehabilitation Facilities), and GPRA (Government Performance Reporting Act) compliance standards

While this package is integrated with other modules of RPMS, including the Patient Care Component (PCC), the package uses security keys and site-specific parameters to maintain the confidentiality of patient data. The package is divided into three major modules:

1. **Behavioral Health Data Entry Menu**: Use the Behavioral Health Data Entry menu for all aspects of recording data items related to patient care, case management, treatment planning, and follow-up.
2. **Reports Menu:** Use the Reports menu for tracking and managing patient, provider, and program statistics.
3. **Manager Utilities Menu:** Use the Manager Utilities menu for setting site-specific parameters related to security and program management. In addition, options are available for exporting important program statistics to the Area Office and HQE for mandated federal reporting and funding.

3.12 Nursing Patient Acuity Assessment

Overview
The Nursing Patient Acuity Assessment package, using the IHS standardized patient acuity methodology prescribed for all IHS hospitals, computes the level of nursing care required for the patient by ward/unit and hospital. It also provides a staffing efficiency rating for each ward or unit.

This package can run as a standalone system or with the Patient Registration System. In either case, it uses the standard IHS patient file for basic patient demographic data.

Features
Nursing Patient Acuity Assessment module features include:

- Assistance with staff planning for nursing units
- Use of a standardized acuity methodology for performing assessments

3.13 Patient Care Component (PCC)

Overview
The Patient Care Component is comprised of six integrated modules which incorporate all patient related information gathered during patient contacts into one comprehensive, centralized data file to support healthcare planning, delivery, management, and research. These modules can be described as follows:

1. **PCC Data Entry** encodes all commonly used English language terms into the International Classification of Disease (ICD9) CM codes. This module also includes functions that provide for PCC Table Maintenance.

2. **PCC Health Summary** is a comprehensive patient health history derived from the comprehensive, centralized data file.

3. **PCC Management Reports** generates and prints a series of reports for patient care and program management.

4. **PCC Options and Help Frames** describes options to perform various PCC functions and provides helpful documentation for performing these options.

5. **PCC Data Extractions** collects and transmits inpatient and ambulatory visit data for national statistical reporting.

3.14 PCC+ Customizable Encounter Form

Overview
The New Encounter Form and Health Summary Package (PCC+) enables end users to design highly customized encounter forms and health summaries. These documents are generated locally on a laser printer before each clinic visit, fully replacing their traditional PCC counterparts. The new encounter forms combine features of the standard PCC encounter form, super bill, and health summary. Customized elements of the form come from the PCC database (demographic information, eligibility data, problems, purposes of visit, allergies, health maintenance reminders, and medications), the site preference files (orderables and associated CPT codes), and the user preference file (diagnoses and associated ICD codes).

Features
The PCC+ module features include:

- Ability to build a custom encounter form for your site or from PSG-designed templates

- Ability to print custom encounter forms on the fly based on physician preferences and patient demographics

- Ability to print encounter forms with current patient data pulled directly from the RPMS system.

3.15 Patient Chart GUI

Overview
The IHS Patient Chart program is a Windows/NT based Graphical User Interface (GUI) application that allows a provider to review and in some cases edit or add patient data.

The Patient Chart program was designed as an efficient and task-focused interface between providers and the RPMS suite.

Features
The Patient Chart module features allow physicians to:

- View, add, and edit a patient's BH data, add and edit BH visit data
- View, add, or update a case status
- View, add, or update a BH treatment plan
- Fill out the suicide tracking form
- View, add, or edit information regarding group BH sessions
- Add or update non-patient account data, and view a number BH-specific reports
- View and print face sheets, medication information, and laboratory trend data
- View, add, and print laboratory orders
- View and print purpose of visit, allergy tracking, and diabetes patient care management data
- View, print, modify, and delete problems and problem notes
- View, print, add, edit, and graph patient measurements
- View, add, edit, print, request, and delete referred care requests
- View and print health summaries, radiology information, and women's health reports
- View and print appointment information and lab results
- View, add, and edit immunization data

- View, add, edit, and print patient education data
- Access traditional RPMS screens through a telnet option

3.16 Pharmacy

Overview
The Pharmacy package is a comprehensive system that includes the modules described below:

National Drug File (NDF): As the reference backbone of Pharmacy developed by the Department of Veterans Affairs, the NDF provides for the systematic management and classification of all medications, including over-the-counter drugs and those being investigated, prosthetic items, and expendable supplies. Much of the data in the NDF is extracted from a tape supplied by the Food and Drug Administration (FDA) and updated periodically as new FDA information is received. Information from the National Drug File can be merged into a facility's drug file, providing a non-intrusive standardized method for updating the drug file at all IHS medical facilities. This update ensures the incorporation of new drug nomenclature and classifications on a system-wide basis; facilitates identification of drug-drug, drug-allergy, drug-lab, and drug-food interactions; provides for monitoring of drugs, prosthetic, and supply items; and ensures a current database for use by the healthcare provider.

Outpatient Pharmacy: This module provides for the management of patient medication regimens in outpatient clinics, the outpatient pharmacy workload, and costs. This module is used when filling new or refill, full or partial, and bulk prescriptions. It allows the reprinting of a label in event that the printer does not work correctly. It contains modules that support maintenance, supervisory tasks, and quality assurance. This application provides a variety of reports in such areas as output and medication profiles, and it most recently includes monograph sheets on drugs for purposes of patient education.

Allergy Tracking: This module enables clinicians and other healthcare providers to input patient allergy information for display in the pharmacy module. Pharmacists can then be aware of possible drug interactions and adverse drug reactions.

Average Wholesale Pricing (AWP): This module is confidential and contains proprietary information purchased from Medi-Span/First Databank Inc. AWP pricing data is extracted from Med-Files formatted then exported to authorized IHS facilities for use by the Third Party Billing Package.

Inpatient Pharmacy Suite: Pharmacists and pharmaceutical staff use this module to manage, dispense, and administer IV medications. It provides pharmacy users with IV labels, manufacturing worksheets, and ward lists for order update. This package

integrates clinical and patient data to provide a variety of administrative and clinical reports on IV medications. This package maintains an accurate and timely dataset of hospital IV orders, and it integrates with the Medical Administrative System (MAS) to track ward transfers and discharges.

Pharmacy Data Management
Pharmacy Data Management software provides and consolidates tools for managing Pharmacy data. It provides the capability of entering and editing local drug file data in one location for all Pharmacy related packages.

Automatic Replenishment / Ward Stock
The Automatic Replenishment / Ward Stock package provides a computerized means of tracking drug distribution and inventory management within a facility. It also includes an AR/WS Nurses' Menu that sites may elect to use.

Pharmacy Auto Refill System
The Pharmacy Auto Refill system allows RPMS to interact with a commercial automated telephone system (AudioCare®) to refill prescriptions. The system will also check on prescription status and provide feedback to patients who are calling to have prescriptions refilled.

3.17 Pharmacy Point of Sale (Class II)

Overview
The Point of Sale module in the Pharmacy package is designed to increase revenue generation from pharmacy services by providing a means for I/T/U facilities to perform online submittal of pharmacy claims, via a switch company, to third-party payers. The enterprise-wide deployment of this software includes training and assistance with setup/process/workflow and on going support as necessary. The required format for electronic claims submission has been incorporated in the software. The POS software interfaces with the Third Party Billing package, provides an array of reports, and management statistics.

3.18 Radiology/Nuclear Medicine

Overview
The Radiology / Nuclear Medicine package is a comprehensive software package, designed to assist with the functions related to processing patients for imaging examinations. The Radiology / Nuclear Medicine package automates the entire range of diagnostic functions performed in imaging departments, including request entries

by clinical staff, registration of patients for exams, processing of exams, recording of reports/results, verification of reports online, displaying/printing results for clinical staff, automatic tracking of requests/exams/reports, and generation of management statistics/reports, both recurring and ad hoc. The Radiology / Nuclear Medicine package automates many tedious tasks previously performed manually, providing faster, more efficient and accurate data entry and more timely results reporting.

Features
Some of the highlights of the Radiology package features include:

- Online patient registration for exams
- Automatic printing of flash cards and jacket labels
- Transcription of patient radiological reports
- Daily activity log, exam status reports, incomplete/delinquent exam reports, and unverified/unreleased exam reports
- Workload reports generated by various criteria such as personnel, film usage, exam area, and ward
- Reports by procedures, diagnostic codes, and radiologists for quality improvement
- Online physician verification of radiological exam reports through electronic signatures
- Fully integrated with the Patient Care Component
- Procedures identified with CPT codes to facilitate billing

3.19 Referred Care Information System

Overview
The Referred Care Information System (RCIS) is a group of computer programs that automate the clinical and administrative management of all referred care, including in-house referrals, referrals to other IHS facilities, and referrals to outside contract providers. Information entered to the system provides timely and accurate referral data on individuals and groups of patients for the key clinical and administrative managers at care delivery sites, IHS Areas, and IHS Headquarters. By tracking this information, RCIS helps ensure that referred care services are appropriate, effective, of high quality, and provided at fair and reasonable prices.

Features
RCIS contains many features that facilitate the entry, management, and retrieval of referred care data. The RCIS provides the following features:

- Tracking of information on all types of referred care, including care provided by CHS, non-CHS, IHS facilities, and Tribal sites
- Direct data entry by a provider or by a clerk from a handwritten referral form
- Automated data entry for common referrals specific to a facility; e.g., screening mammography, audiology, or prenatal care
- Care categorized into clinically defined "episodes" rather than individual purchase orders
- Redundant data entry minimized by links with the Contract Health Service system (CHS) and the Patient Care Component (PCC)
- Data collection and recording allowed before, during, and after referred care is provided

Benefits
Numerous outputs are available from the RCIS that facilitate data retrieval and administrative tasks. The system includes:

- Automated e-mail bulletins to managers on potentially high-cost cases, cosmetic and experimental procedures, and cases that may have third-party liability
- Printer referral forms that patients take to the referred provider, each containing necessary administrative and clinical data for referred care services to the extent that this information has been entered into the system
- Standard sets of administrative reports including reports on high-cost management, utilization, quality of care, contract management, and third-party utilization
- An ad-hoc retrieval system, both within RCIS itself and by transferring data to the PCC where it is accessible by Q-Man, the more powerful ad-hoc search tool

3.20 Taxonomy

Overview
Taxonomy provides the ability to create and save a list of related ICD 9 diagnostic codes for future use. Creation of a patient taxonomy causes automatic creation during PCC data entry of a list of patients who fall within this diagnosis taxonomy. The package generates ad hoc or case specific reports based on patient groups. Using a link to the Taxonomy system, a user can create both diagnostic and procedural taxonomies in Q-Man. The user can then use these defined groups of ICD codes for future retrievals without entering every code number again.

Features
Highlights of outstanding Taxonomy features include:

- The tracking of patients who fall within a group of related diagnoses
- The grouping of diagnoses or procedures to make ad hoc retrievals easier
- A new utility that gives other RPMS applications the ability to classify patients based on a diagnosis or procedure entered into PCC.

3.21 Women's Health

Overview
The Women's Health System tracks women in need of PAP smear tests and/or colposcopy and promotes consistent treatment and follow-up. The software tracks exams and results and suggests actions and follow-up based upon those results. It generates letters telling patients of the results (even if normal) and proposes a date for further testing. It identifies, stores, and tracks clinical and demographic information about women who have had abnormal PAP smear results, have undergone colposcopy, or who otherwise need special tracking or follow up. It also tracks and produces an array of reports on breast and cervical treatment and pregnancy due dates. From stored data it provides various epidemiological and workload reports.

Features
Highlights of Women's Health/Pap Smear features include:

- Identification by facility, community, and date those women needing PAP smear testing, then providing a notification letter
- Modification of the PCC Health Summary to indicate the date and result of last PAP, the date when the next PAP is due, and colposcopy information

- The tracking of appointments, PAP smears and their results, and follow-up appointments
- The linking of proposed treatment and follow-up plans to coded results
- The action suggested for an abnormal PAP result using a modifiable set of criteria
- Flagging of "abnormal" results in a PAP registry for monitoring, evaluating, and reporting on patients separately from the "normal" population
- If a colposcopy is indicated, the tracking of notification, appointments, procedures performed, results and follow-up
- Inserting of data into PCC files for use by Q-Man and moving data from site to site via multi-facility integration.

4.0 Financial and Administrative Applications

4.1 Accounts Receivable

Overview
Accounts Receivable processes, manages, reports, and follows up on accounts receivable transactions related to all third party billing activity. This package complements the RPMS goal of collecting monies from third party Payers like Medicare/Medicaid and private insurance companies for services rendered at IHS hospitals and clinics and at tribal 638 facilities.

Accounts Receivable software enables users to generate bills using the RPMS database, the Patient Registration System, and the Third Party Billing System and track them until they are paid in full or written off. The system compiles collection data and makes it possible to deposit funds in the bank in the shortest amount of time. This software makes it possible to set up patient, vendor, insurer and general ledger accounts.

The latest version of Accounts Receivable is HIPAA compliant and will allow sites to transmit HIPAA compliant transactions.

Features
Some of the outstanding Accounts Receivable application features include:

- Bill payment tracking
- Payment/non-payment accounting by category
- Monthly statements for patient accounts
- Extensive reporting capabilities including A/R aging reports
- Automatic follow-up letters for delinquent accounts
- Flat rate posting
- Posting of an electronic remittance advice from Medicare

4.2 Administrative Resource Management System (ARMS)

Overview
Administrative Resource Management System (ARMS) is an automated requisition and purchase order system featuring electronic routing of documents for approval and signature and an automated commitment register.

Features
Outstanding ARMS features include:

- Ability to create, edit, print, and review status of pending requests
- Execution of travel requests and obligation of funds for travel and accommodations
- Review of approved or disapproved requests and their reasons for exception
- Maintenance of a vendor database
- Creation and tracking of the purchase order process
- Ability to reviewing status and printing of due-in reports
- Tracking of obligated, committed, and distribution of funds
- Training evaluations
- Financial queries and reporting
- Invoice audits and journal voucher obligated document reports
- Ability to reconcile orders against receiving activity via reports
- All common purchase agent functions

4.3 Contract Information Systems (CIS)

Overview
Contract Information System (CIS) provides a single source of IHS procurement award data that will satisfy IHS reporting obligations to the Public Health Service Contract Information System (PHSCIS), Departmental Contracts Information System (DCIS) and the Federal Procurement Data System (FPDS), in addition to meeting the information needs of IHS management.

The CIS database contains all IHS contracts of any dollar value active at any time during a specific fiscal year. Data includes every action of any dollar value made during the life for any of the contracts. Each IHS Area Office and Office of Engineering Services (OES) Contracting office must send automated data to CIS in an automated monthly. Each Area Contracting Office is responsible for reviewing the Data Export Report generated by the CIS to insure the transmission occurred on schedule.

Features
Highlights of Contract Information System's outstanding features include:

- A single source of IHS procurement award data.

- Automatic extracting of required data for IHS Headquarters for monthly transmission.

- Transmission of data that includes new IHS contracts awarded since the last reporting period plus all contract actions on any contract.

4.4 Emergency Room System

Overview
The IHS Emergency Room system is a tool that will allow facilities to better run and manage their Emergency rooms. With the Emergency Room system, you can register, admit, and discharge patients. This package allows you to run a broad range of reports that will help you to see and manage the flow of patients and the staff workload.

The IHS Emergency Room system captures ER data in two stages: admission and discharge. Admission data is stored in the ER ADMISSION file until the patient is discharged. Discharge info is stored in the ER VISIT file. Once the visit has been created the visit data is passed to the Visit, V POV and V Provider file. There is also a triage function that can be used to track the patient through the emergency room process.

4.5 Equipment Data Entry

Overview
Equipment Data Entry is designed to provide IHS Area Offices with an easy and fast method to record changes in their equipment inventory and to report those changes to the IHS central data repository in Albuquerque.

This application maintains two files in the Area computer:

- The equipment master file, which contains the account number, description, life expectancy, index number, source, object and sub-object accounting code, and inventory frequency of each piece of equipment

- The equipment unit file, which contains various transactions related to the master record such as receipts, disposal, adjustments, maintenance/repair information, quantity, value, manufacturers serial number, cost center, bar code decal, and computer control number

Features
Some of the outstanding Equipment Data Entry system features include:

- Tracking of receipts, disposals, and adjustments.
- Maintenance and repair cost reporting.
- Inventory control assisted by capture of manufacturer serial numbers and bar code numbers.
- Extraction and transmission to central NPIRS database.

4.6 GPRA+ Clinical Indicator Reporting System

Overview
The GPRA+ Clinical Indicator Reporting System is designed for national reporting as well as local and Area monitoring of clinical GPRA and developmental indicators. The Government Performance and Results Act (GPRA) requires Federal agencies to report annually on how the agency measured up against the performance targets set in its annual Plan. IHS GPRA indicators include measures for clinical prevention and treatment, quality of care, infrastructure, and administrative efficiency functions. The GPRA+ Reporting System is the reporting tool used by the IHS Office of Planning and Evaluation to collect and report clinical performance results annually to the Department of Health and Human Services (DHHS) and to Congress.

Features
Administrative and clinical users will be able to review individual or all indicators at any time, and can:

- identify potential data issues in their RPMS, i.e., missing or incorrect data;
- monitor their site's performance against past national performance and upcoming agency goals;
- identify specific areas where the facility is not meeting the indicator in order to initiate business process or other changes;
- quickly measure impact of process changes on indicators;
- identify areas meeting or exceeding indicators to provide lessons learned.

4.7 Medical Administration System (MAS)

Overview
MAS is the Scheduling and Admissions, Discharge, and Transfer module, adapted from the VA, which automates all aspects of the outpatient appointment process. Primary scheduling functions allow for setting up and maintaining appointments and

accommodate specific clinics. It also provides for printing of appointment lists and workload reports.

The Admission/Discharge/Transfer (ADT) module records all inpatient admissions, ward transfers, service transfers, and discharges for a facility. This application is integrated with Patient Care Component (PCC). Upon a patient admission, a PCC visit is created. After discharge, all clinical data for the inpatient stay is entered directly into PCC from the ADT software. The admitting supervisor can also use tracking and verification functionality in the Ambulatory Surgery and an Incomplete Chart Tracking modules.

Features

The MAS Scheduling features include the following features:

- Creation of clinic schedule patterns with fixed or variable length appointments slots.
- Multiple appointment booking for dialysis treatments and physical therapy clinics.
- Online display of clinic availability and first available appointments within a group of provider-based clinics.
- Printouts of charge-out sheets by clinic for Medical Records.
- Ability to reschedule canceled clinics and patient no-shows.

The MAS-ADT module includes the following features:

- Tracking of all patient movements and changes in service (inpatient and outpatient)
- Single screen display of the last inpatient stay and future ambulatory surgery with future appointments
- Tracking of completeness of clinical data in PCC for each inpatient visit
- Reports and bulletins printed and sent for events such as inpatient deaths, readmissions, and transfers to ICU
- Tracking of canceled ambulatory surgeries, no-shows, and admissions following surgery up to a defined number of days
- Tracking of scheduled admissions and scheduled ambulatory surgeries
- Printouts of incomplete and delinquent chart reports for each provider

- Reporting of order entry and results

4.8 Patient Information Management System (PIMS)

Patient Information Management System (PIMS) is the name given by the VA for a suite of software of which IHS uses the following: data dictionary for the VA Patient file, Admission/Discharge/Transfer (ADT) application, Clinic Scheduling application, and Sensitive Patient Tracking (SPT) module.

PIMS:

- Allows sites to manage outpatient appointments in one centralized option
- Displays the appointment list. This list can include who made the appointment, primary care provider, phone number
- Offers new Primary Care Provider menu to assign primary care providers and teams to patients
- Can admit patients to Observation beds which will be included on the census
- New UB-92 admission types
- Contains a new Day Surgery module that interfaces with PCC and Incomplete Chart list
- New IHS Sensitive Patient Tracking Module
- Alerts the appropriate staff that a user has accessed a restricted record

Features

Highlights of some of the outstanding PIMS features:

- Redesigned menus –"One-Stop Shopping"
- Centralized appointment menus-combines check-in, walk-in, cancel, no-show, etc
- Month-at-a-glance can handle 16-hour days
- Customizable Appointment Lists:-can sort by who made appt, phone #, primary care provider
- Can view appointment details from browse screen
- Chart Locator tool
- Can admit observation patients
- Observation patients included in patient lists, census, and statistical reports
- New UB-92 admission type
- Re-design of Incomplete Chart Analysis
- Day Surgery module interfaced with PCC and Incomplete Chart file
- Tracking of "sensitive" patients

4.9 Patient Registration

Overview

All patient care applications in the RPMS refer to the Patient Registration system for patient demographics such as patient name, date of birth, address, medical record

number, Indian quantum, tribal membership, and insurance. The system automatically sends demographic data updates periodically to the IHS NPIRS in Albuquerque, New Mexico.

The IHS Social Security Number Matching module provides a mechanism by which the agency verifies patient social security numbers (SSNs) from the facility patient registration database. Each facility can compare patient social security numbers with the Social Security Administration's (SSA) electronic information to determine valid SSNs. When there is a match with the SSA data, the correct number is added to the patient's registration record.

Features
Patient Registration features include the following:

- Single entry point and storage of patient demographic data, accessible to other RPMS software
- Collection of insurance policy data in support of Third Party Billing software
- Extracting and exporting function that supports the National data repository and Area-by-Area statistical reporting on the patient population

4.10 Quality Assessment and Improvement Management

Overview
Quality Assessment and Improvement Management (QAIM) tracks quality improvement activities at hospitals and clinics. The Clinical Indicator module monitors and documents important activities by defining clinical indicators and their review criteria. The Data Collection and Evaluation module presents various tools for data collection including occurrence tracking and the Q-Man software. The occurrence tracking mechanism tracks occurrences through the peer and committee review process and provides reports for identification and evaluation of trends. Based on this data evaluation, the Action Evaluation module documents actions taken to improve quality.

Features
Outstanding QAIM features include:

- Central Location to document clinical indicators and actions taken to improve patient care
- A to-do list provided upon log in to QAI System

- Occurrence data entry customized for each clinical indicator
- A link to Patient Care Component for ease of data collection
- A documented occurrence review process, including findings, actions, review comments, and severity levels
- Trending reports that assist in finding patterns indicating improvement opportunities
- Availability of reports in ASCII format for use by PC-based statistical software

4.11 Quality Improvement Linkages

Overview
Quality Improvement Linkages collects and transmits RPMS clinical applications data to the JCAHO Indicator Measurement System. The QI Linkages to RPMS software provides a mechanism by which to automatically collect occurrence data from various RPMS packages for quality improvement activities. A defined event in an RPMS package triggers the mechanism. Once triggered, this software checks for required data and then creates an occurrence in the QAI Management System. The Admission/Discharge/Transfer (ADT) linkages are readmission, admission after day surgery, transfer in from another hospital, transfer to ICU, return to ICU, AMA discharge, transfer out to another hospital, and inpatient death.

Features
Outstanding Quality Improvement Linkages features include:

- Time savings provided by finding cases to review
- Automatic creation of ADT occurrences
- ADT linkages that are service-specific, adding flexibility to data collection
- Facility control over linkages on and off status

4.12 Release of Information System (ROI)

Overview
The ROI is designed to assist users in the automatic recording and tracking and maintenance of all Requests for Patient Medical Information Data at the IHS field

facility. This package assists in the compliance process of the Privacy Act of 1974 and the new requirements of the Health Insurance Portability and Accountability Act (HIPAA) privacy standards.

Each Disclosure entered into the system is automatically assigned a Sequential Disclosure Number preceded by the ASUFAC Number for that particular site. Multiple Site Parameters can be created under the Management Menu option for tracking individual field Site requests.

Features
ROI tracks the following information:

- Requesting Party;
- Disclosure Record Status (Open/Closed/Hold);
- Type of Disclosure (Medical Record, Other);
- Purpose of the Disclosure (Further Medical Care, Insurance, Attorney, Personal, School, Tort, FOIA, Subpoena, Other);
- Detailed Description/pertinent information/Medical Record Date Range;
- Request Priority (Non-Critical, Stat);
- Field Staff Assignment;
- FOIA Requests;
- Receiving Parties.

4.13 Staff Credentials

Overview
Staff Credentials maintains and tracks medical staff credentials for purposes of granting privileges. The application does NOT replace medical staff credential files. Rather, it helps track the status of each file. For example, instead of storing all data on a provider's residency training, it tracks whether the data is on file and has been verified as correct. This application is a useful tool with nominal data entry required.

Features
Some highlights of Staff Credentials include:

- Warnings of when medical licenses are due to expire
- Tracking completeness of files for appointment to medical staff
- Tracking reappointments that are coming due
- Provision of delinquent chart, visit, diagnosis, and procedure counts by provider

4.14 Supply Accounting Management System (SAMS)

Overview
The Supply Accounting Management System (SAMS) manages, maintains, and reports monthly on supply records and warehouse inventory. It collects data concerning the purchase and use of supplies within the location for which SAMS is implemented. It also puts the data into the format needed for updating the IHS-wide STORES database. The AIB package is then used to transmit this data to the Data Center for updating the STORES database.

Features
Some outstanding SAMS features include:

- A database organization reflecting general medical supply consumption areas and including a General Ledger Account
- Identification of purchasing location, issued-to location, and user department
- Unique indexing of each supply item controlled by individual Area
- Common Accounting Numbers (CANs) used in gathering financial information

Benefits of SAMS

- Transactions are posted in real time.
- Entry of data is accomplished through use of VA ScreenMan. As a result, it is possible to move from field to field as data entry is being done (that is, to correct an erroneous field value previously entered).
- Reports are generated from the transaction history file rather than from update run extracts. The result is that reports for previous periods can be created or recreated easily.
- Transaction file entries contain new fields for saving the pointers to the tables used to verify their data entry fields. This allows more flexibility in creating ad-hoc reports based on history transaction records.
- An extensive 'Checkpoint Restart' run status system is included.
- The Site file contains all the information in the previous Type Last Run file, but in addition, it includes prompt default settings, printer defaults and report file defaults. It is also the location of the status flags used by the 'Checkpoint Restart' function.

4.15 Third Party Billing

Overview
The Third Party Billing system creates claims for eligible patients automatically from Patient Care Component (PCC) visit information. In Third Party you can edit files and claims; print a UB-92, HCFA 1500, or ADA Dental form; and create an electronic UB-92 file or the national standard format electronic HCFA-1500-E as a mode of export. The system prints bills for Private Insurance, Medicare, Medicaid, and Non-beneficiary (self-pay) patients.

Using complete fee schedules for all applicable Common Procedural Terminology (CPT) codes and Revenue Codes including Medicare's Ambulatory Surgery schedule allows Third Party Billing to better identify the level of care during a patient visit and provide more accurate billing. In Third Party Billing you can also designate and sequence International Classification of Diseases – 9th revision (ICD9) diagnosis and procedure information.

This software can also create manual claims for those facilities not running the Patient Care Component of RPMS.

Recent additions to the software include support of FileMan version 21 and 22, auto-approve dental claims, additional modes of export and files that support claim submission to Envoy/ Web MD, and a new file that will prevent local modifications from being overwritten by future ABM versions.

Features
The Third Party Billing features include:

- Use of the Medicare Ambulatory Surgery schedule
- Claim error checking to prevent submission of erroneous or incomplete bills
- Hardcopy (UB-92, HCFA-1500, ADA-90) forms generation and electronic claims submission (HCFA-1500-E and UB-92)
- Complete fee schedules for all applicable CPT, ADA, and Revenue Codes
- An interface to the RPMS Accounts Receivable package

Benefits of Third Party Billing

- Increased collections from Medicare, Medicaid, and private insurance are possible, with less effort from the business office staff.
- Because of connectivity to PCC, fewer potentially billable visits are missed.

- Provision for billing the professional component on a separate claim form and rolling over unpaid claim balances into a secondary insurer claim.

4.16 Uniform Data System (UDS) Reporting System

Overview
RPMS UDS Reporting is intended for use by tribal or urban health facilities receiving grant funds for primary care system development programs administered by the Bureau of Primary Health Care (BPHC), Health Resources and Services Administration (HRSA). The RPMS UDS Reporting System provides passive extraction of patient and visit data from the IHS Resource and Patient Management System (RPMS) to produce four of the nine UDS reports. For each of the four reports, RPMS UDS also produces lists of all patients and related visits that are counted in the reports.

5.0 Infrastructure Applications

5.1 Area Data Consolidation Export System

Overview
The Area Data Consolidation Export System (BXP) is a UNIX-based system for transmitting IHS facility patient data from IHS Area offices to the National Patient Information Reporting System (NPIRS) in Albuquerque, New Mexico. BXP was designed to consolidate facility patient data, validate record lengths, and provide accurate counts on the number of records transmitted over the IHS WAN/LAN network to NPIRS. The BXP user interface simplifies system file management by providing an easy process for backing up, restoring, reprocessing, recreating, purging, and archiving patient data files sent to NPIRS.

5.2 Automated Information Systems (AIS) Security

Overview
The 1996 revised OMB Circular A-130, Appendix III (AAIS Security) requires security controls in all general support systems under the presumption that all contain some sensitive information. This revised A-130 focuses extra security controls on particularly high risk or major applications and requires agencies to follow thirteen security program initiatives and activities, one of which is to include the security plan as part of the Agency's IRM plan. The past, present and future activities in the IHS AIS Security Program include the following features.

Features
Security Plans are needed for all systems due to the presumption that all support systems contain some sensitive information, including major applications of high risk.

Incident Response Capability. Using McAfee VirusScan software for PCs and McAfee WebScan for protection for web browsers and E-mail for the agency, and establishing a Computer Emergency Response Team (CERT), IHS can respond to security incidents (including virus infections, hackers, disgruntled employees, software malfunctions) which protect information and helps to protect others affected by a security incident to alert Agency network representatives.

Regular Review of Security and Application Controls performed in review or audit form every three years. Depending upon risk and magnitude of loss or harm that could result, deficiencies will be reported in the FMFIA Report.

Awareness and Training. Security awareness and training is provided for all new employees, discussing security policies and procedures, viewing a video which outlines and demonstrates the risk involved in using computers and how they can protect information, and by signing a statement certifying they have had initial computer security awareness training and they understand software copyright laws. For current employees, updated annual security training is provided via an online Security CBT, which requires their submission of employee information at the end of the training session. Further, there are annual meetings and training sessions for the Information System Security Officers (ISSOs).

Technical Security. Security controls and system rules are specified, designed, and accepted in network application to assure effective security safeguards. Security controls include use of account codes, passwords, electronic signatures, and software edits which limit data that can be entered into certain files. Systems Interconnection, (firewall) which is the access to/from other systems, are controlled in accordance with guidance issues by the National Institutes of Standards and Technology. A Firewall has been established for Internet accesses.

Area Offices have established and utilize contingency plans by organization, application systems and as needed obtained reciprocal agreements with other offices for backups in their contingency planning. There is also an automated agency-wide disaster recovery planning package available for use. Additionally, the Area Offices use Personnel Controls for their managers, ISSOs, and local area network administrators by having them properly screened. Controls are established to enforce individual accountability and using rules of least privilege. Those are individuals who are given ability to bypass technical and operational controls to perform system administration or maintenance functions, personnel clearance screening supplements the technical, operational and management controls.

Each Area Office has one or more ISSOs who are responsible for maintaining the Area's ongoing information security awareness and training program, which include sending personnel to special classes, conducting presentations for groups of employees, performing audits and reviews, and circulating security information. An Agency ISSO is responsible for training and guiding the Area ISSOs in ways to prevent, protect, and recover from security problems nationwide.

Authorize Processing (Certification and Accreditation). This is used to authorize continued processing, based on a technical certification, an assessment of management, operational, and technical controls from a security plan, a current risk assessment, or any audit reviews of the general support systems. This assures that senior officials whose mission will be adversely affected by security weaknesses in the application, periodically assesses and accepts the risk of operating these information systems.

Information Sharing with other organizations (private or government) is appropriately protected within IHS applications. Statements must be signed by IHS employees, and vendors serving IHS, agreeing to comply with the DHHS AIS Security Program

Handbook requirements for the protection of sensitive information. Sensitive (financial, privacy, medical, proprietary, etc.) information is labeled as privacy or confidential data, and the system controls protect it from inappropriate access.

Public Access Controls are implemented to minimize the risk involved in information exchange with the public, via the IHS home page on Web (WWW) for information dissemination totally separated from IHS-sensitive applications systems and internal agency records. Plans include encryption and advance authentication technologies for IHS sensitive systems.

5.3 IHS V Files 200 Conversion System

Overview
The goal of the IHS V Files 200 Conversion package is to convert PCC from File 6 use (Provider file) to File 200 use (New Person file) to determine provider data. This will require that the appropriate provider data, currently stored in and obtained from File 6, be merged into File 200 in such a way that is transparent to system users.

The V Files 200 Conversion package enhances the PCC suite of packages by completing a two-phased approach to convert PCC data elements from File 6 to File 200 pointers with the conversion.

5.4 Generic Interface System

Overview
The GIS package (BHL) allows the site to receive and send demographic and PCC data to and from the RPMS system. The data strictly adheres to the GIS HL7 message specification. A variety of HL7 events are supported, including all that will allow the passing and receiving of data in the VA PATIENT file, the PATIENT file, and all supported VISIT and V files. It also supports inbound and outbound queries for immunizations.

5.5 VA MailMan

Overview
MailMan is an electronic messaging system that transmits messages, computer programs, data dictionaries, and data between users and programs located at the same or different facilities. Network MailMan disseminates information across any communications medium. If you install Integrated Imaging, MailMan becomes a multimedia application that sends images locally and across the network.

When you integrate MailMan into an application, it notifies individuals and groups about important events. A change in the value of a field in VA FileMan can trigger a message called a bulletin. MailMan is easy to learn and use. There is an extensive set of MailMan Application Programmer Interfaces (APIs) for the programmer.

Features
MailMan provides the following features:

- Send messages to individuals, mail groups, and devices
- Automatic management of message response chains
- All users can assume the identity of a Shared Mail user to read mail. Sending messages to Shared Mail is similar to posting notes on a bulletin board
- Use of a surrogate to read and/or answer messages
- User-specified mail baskets and use of messages as a tickler file
- Message security using keyed scrambling and multiple layers of local and network security
- Convenient transmission of software (whole modules and patches) via messages using PackMan messages for installation
- Network transmission across TCP/IP channels to any SMTP compatible mail system
- Ability to direct all application outputs into MailMan messages
- Collection of extensive mail system statistics

5.6 VA Kernel

Overview
The VA Kernel provides a portability layer between the underlying operating system and application code. This makes the entire system portable across different computers, operating systems, and M implementations. This, together with the database portability FileMan provides, has eliminated the cost of application conversions each time there is a change in the computing platform.

The Kernel also provides shared services for applications, resulting in reduced development costs and a common user interface. In addition, Kernel provides tools for managing the computer systems.

Features

ZOSF/ZOSV Operating System Interface
As the core of Kernel's portability, insulates applications from being tied to any particular hardware platform, operating system, or M implementation.

Sign-On and Security Management

- Control of user access by device, time, and day of week
- Control of user access to programs, menus, files, fields, and devices
- Audits by use, device, program, file, and field
- Electronic signature capability

Menu Manager

- Management of application menus to provide a standard user environment
- Customizable menus for individual users
- Sharing or restriction of menus to a user or a set of users
- Secure delegation of menu management authority
- Delivery of priority system alerts

Error Processing

- Provides a consistent method for recording and processing application errors

Device Handler

- Definition of generic terminal types for reuse on similar peripherals
- Support for host files in layered operating system environments
- Insulation of programmers from device and operating system specific coding
- Standard user device selection across different environments

Task Manager

- Flexible background job scheduling

- User control of their own tasks
- Specification of device, priority, and time of execution

Kernel Installation and Distribution System (KIDS)

- Mechanism to create a distribution of packages and patches
- Distribution via a MailMan message or a host file
- Queuing an installation of a distribution for off-hours

5.7 VA Kernel Toolkit

Overview

Kernel Toolkit (also referred to as "Toolkit") supplements the Kernel software package. It provides development and quality assessment tools, capacity management tools, and system management utilities.

Features

Development and Quality Assessment Tools:

- Promotion of standard programmer interfaces
- Programmer and systems management
- Portable routine and global editor
- Check for adherence to programming standards and correct syntax with %INDEX tool
- Standard error trapping, storing, and reporting
- Quality assessment tools for the comparison of routines and data dictionaries
- Software project management utilities

Capacity Management Tools:

- System status reports and usage statistics
- System response time logging for performance management
- Automated performance analysis tools

- Alerts of system managers to dangerous or unusual conditions
- Delivery of reports automatically via MailMan
- Tools for software optimization and application sizing

System Management Utilities:
- Customizable and tunable site parameters for local requirements
- Kermit file transfer utility
- Multi-term lookup utility for enhanced FileMan lookups
- Duplicate resolution utilities for the creation of file maintenance applications

5.8 VA FileMan

Overview
VA FileMan, which runs in any ANSI M environment, is the RPMS database management system (DBMS). The majority of RPMS clinical data is stored in FileMan files and is retrieved and accessed through FileMan APIs and user interfaces.

Features

For Users:
- Standalone user interface for adding, editing, printing, and searching data
- Form-based editing (ScreenMan)
- Easy terminal-based editing of word processing database fields (Screen Editor)
- Flexible, extensive report module
- Scrollable onscreen output of any report (Browser device)
- Data interchange with outside applications such as PC spreadsheets and databases (Import and Export Tools)

For Developers:
- Full support for forms-based interfaces to the database (ScreenMan API, Form Editor)

- Full database access for client-server applications (Database Server API)
- Easy scrolling-mode interfaces to the database (Classic API)
- Full database access in Delphi-based applications via FileMan Delphi Components
- Data archiving and transport tools
- Comprehensive file creation and management utilities
- SQL Interface (SQLI) projects all of the information needed by M-to-SQL vendors to access FileMan through M-to-SQL products

Performance: Today's computer systems are several orders of magnitude more powerful than earlier systems. Demand, however, has also grown by several orders of magnitude. M and FileMan are compact and efficient, and provide fast database performance and high utilization of computer systems.

Portability: Because of the portable, platform independent database services FileMan provides to applications, combined with the operating system portability layer of the Kernel, computing platforms are upgraded without any significant changes to application code.

Openness: FileMan is open; it facilitates data access from outside applications. The Database Server (DBS) API enables client/server access to FileMan data. FileMan Delphi Components take advantage of the DBS API to encapsulate the details of retrieving, validating, and updating FileMan data within a Delphi application. Import and Export tools support data interchange with outside applications such as PC spreadsheets and database programs. SQLI helps make FileMan data available to outside applications.

6.0 Glossary

Term	Definition
AIS	OMB Circular A-130, Appendix III Security
API	Application Programming Interface
CERT	Computer Emergency Response Team
DBMS	Database Management System
DBS	Database Server
DHHS	Department of Health and Human Services
IRM	Information Resource Management
ISSO	Information Systems Security Officer
OMB	Office of Management and Budget
SMTP	Simple Mail Transfer Protocol
SQLI	SQL Interface
TCP/IP	Transport Control Protocol/Internet Protocol
WWW	World Wide Web

7.0 Contact Information

If you have any questions or comments regarding this distribution, please contact the ITSC Service Center by:

Phone: (505) 248-4371 or
(888) 830-7280

Fax: (505) 248-4363

Web: http://www.rpms.ihs.gov/TechSupp.asp

Email: ITSCHelp@mail.ihs.gov